

REMARKS

The present invention is a device for emitting waves in an underground formation and a method of generating in an underground formation vibrational signals according to an oriented emission pattern. A device for emitting waves in an underground formation in accordance with an embodiment of the invention includes at least one vibrator V including two slabs 2, 3, at least one motive of element (which may be a piezoelectric or magnetostrictive material) suited to generate vibrations and to communicate the vibrations to the slabs, and a generator 6 for applying periodic signals to the at least mode of element, where the at least one vibrator is positioned in a well W or cavity and embedded in at least one solid material providing coupling thereof with the underground formation, the at least one material being in contact with the two slabs over at least part of each of the faces thereof, and where the at least one vibrator comprises means for further increasing coupling of the at least one vibrator with the at least one solid material. The means for increasing coupling of the vibrator with the solid material is disclosed as the anchor bar 9 and/or perforations 8 as illustrated in the two slabs 2, 3. See paragraph [0039] of the revised Specification. As may be seen from paragraph [0041] of the revised Substitute Specification, it is stated that "[a]ccording to the embodiment of Fig. 5, each slab 2, 3 comprises as installed at least two plates 2a, 2b arranged and parallel to one another and connected by anchor rods 9 and also see paragraph [0040] of the revised Substitute Specification.

The specification has been amended to further improve the specification for reexamination wherein the usage of the term "plates" in the Substitute Specification has been edited to substitute "slabs" in most places consistent with the original

specification. As disclosed in the original specification, on page 9, lines 20-23, each slab 2, 3 comprises, as shown in the figure, at least two plates 2a, 2b arranged in parallel...". The specification as amended adopts this terminology throughout.

Claims 23 and 40-44 stand rejected under 35 U.S.C. §122 as being anticipated by WO 02/50572 A1 (Baroni et al).

Each of the claims has been amended to recite in independent claims 45 and 73, that the vibrator comprises means for further increasing coupling of at least one vibrator or each vibrator with at least one solid material. This subject matter is generic to the anchor bars 9 and/or the perforations 8. See paragraphs [0039] – [0040] in the Second Substitute Specification where the means for increasing coupling of the vibrator with the solid material is described as the anchor rods 9 and the perforations 8. There is no counterpart of this subject matter in Baroni et al.

Moreover, it is noted that the Examiner has indicated that claims 24-39, which recite the anchor bars associated with the at least one of the plates (now recited as slabs) to increase coupling of the vibrator with the massive coupling material contain patentable subject matter. Accordingly, it is submitted that the incorporation of means plus function limitation to cover the combination of anchor bars and/or the perforations 8 is also patentable for the same reasons as the claims covering the anchor bars.

Moreover, there is no basis in the record why a person of ordinary skill in the art would consider the disclosure of Baroni et al, which is understood to correspond to United States Patent 7,104,357 to render the claims obvious. The '357 Patent, does refer to the use of a cement making the coupling coefficient of the plates with the medium unequal. See column 3, lines 14-19, and column 8, lines 33-41, of the

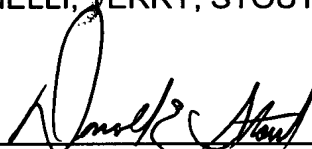
'357 Patent, for what is believed to be an English counterpart statement of the disclosure of Baroni et al. There is no basis in the record why a person of ordinary skill in the art would neither consider Baroni et al to disclose the claimed means or would find it obvious to modify Baroni et al to arrive at the claimed means except without impermissible hindsight.

In view of the foregoing amendments and remarks, it is submitted that each of the claims in the application is in condition for allowance. Accordingly, early allowance thereof is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (612.44903X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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Attachments

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